

Appl. No.: 09/899,645
Amdt. dated January 12, 2005
Reply to Office action of October 18, 2004

Amendments to the Claims:

Claims 1-4. (Canceled)

5. (Currently amended) A method for decreasing β -oxidation in a plant comprising introducing into at least one cell of said plant a nucleotide construct comprising a promoter operably linked to an acyl-CoA thioesterase nucleotide sequence, wherein said promoter drives expression in a plant cell, and said nucleotide sequence is selected from the group consisting of:

- (a) the nucleotide sequence set forth in SEQ ID NO: 1;
- (b) a nucleotide sequence which encodes a polypeptide comprising the amino acid sequence set forth in SEQ ID NO: 2;
- (c) a nucleotide sequence comprising at least 95% identity to the nucleotide sequence set forth in SEQ ID NO: 1, wherein said nucleotide sequence encodes a polypeptide having acyl-CoA thioesterase activity; and
- (d) the nucleotide sequence that is complementary to the nucleotide sequence of (a), (b), or (c);

wherein the level of acyl-CoA thioesterase is ~~decreased or~~ increased and the level of oil or the level of at least one oil constituent is increased in said plant or at least one part of said plant, said part selected from the group consisting of a fruit, a seed, and an embryo.

6. (Cancelled)

7. (Original) The method of claim 5, wherein said part is a seed or an embryo.

8. (Original) The method of claim 5, wherein said acyl-CoA thioesterase is peroxisomal acyl-CoA thioesterase.

9. (Canceled)

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10. (Previously presented) The method of claim 5, wherein said promoter is selected from the group consisting of seed-preferred, constitutive, chemically regulatable and developmentally regulated promoters.

11. (Previously presented) The method of claim 5, wherein said nucleotide construct further comprises an operably linked nucleotide sequence encoding a peroxisome-targeting signal.

12. (Previously presented) The method of claim 5, wherein said constituent is selected from the group consisting of unusual fatty acids, unusual fatty acyl chains and triacylglycerols with at least one unusual fatty acyl chain.

13. (Original) The method of claim 5, wherein said plant produces at least one unusual fatty acid.

14. (Original) The method of claim 13, wherein said fatty acid is selected from the group consisting of vernolic acid, petroselinic acid, sterculic acid, lesquerolic acid, densipolic acid, auricolic acid, *cis*-5-eicosenoic acid, *cis*-5-docosenoic acid, *cis*-5,13-docosdienoic acid, chaulmoogric acid, erucic acid, ricinoleic acid, labellenic acid, crepenynic acid and stearolic acid.

Claims 15-16. (Canceled)

17. (Original) The method of claim 5 further comprising regenerating said cell into a transformed plant.

Claims 18-20. (Canceled)

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21. (Previously presented) A transformed plant comprising in its genome a stably incorporated nucleotide construct comprising a promoter that drives expression in a plant operably linked to a nucleotide sequence encoding an acyl-CoA thioesterase, said nucleotide sequence selected from the group consisting of:

- (a) the nucleotide sequence set forth in SEQ ID NO: 1;
- (b) a nucleotide sequence comprising at least 95% identity to the nucleotide sequence set forth in SEQ ID NO: 1, wherein said nucleotide sequence encodes a polypeptide having acyl-CoA thioesterase activity; and
- (c) the nucleotide sequence that is complementary to the nucleotide sequence of (a) or (b);

wherein the level of acyl-CoA thioesterase is decreased or increased in said plant or at least one part of said plant, said part selected from the group consisting of a fruit, a seed, and an embryo.

22. (Original) The plant of claim 21, wherein said acyl-CoA thioesterase is a peroxisomal acyl-CoA thioesterase.

23. (Canceled)

24. (Previously presented) The plant of claim 21, wherein said plant produces at least one unusual fatty acyl chain in its seeds.

25. (Original) The plant of claim 21, wherein said plant is a monocot.

26. (Original) The plant of claim 25, wherein said monocot is selected from the group consisting of maize, wheat, rice, sorghum, barley, millet, rye and palm.

27. (Original) The plant of claim 21, wherein said plant is a dicot.

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28. (Original) The plant of claim 27, wherein said dicot is selected from the group consisting of soybean, *Brassica*, alfalfa, safflower, sunflower, cotton, flax, peanut and potato.

29. (Original) Transformed seed of the plant of claim 21.

30. (Previously presented) A transformed plant cell comprising in its genome a stably incorporated nucleotide construct comprising a promoter that drives expression in a plant operably linked to a nucleotide sequence encoding an acyl-CoA thioesterase, said nucleotide sequence selected from the group consisting of:

- (a) the nucleotide sequence set forth in SEQ ID NO: 1;
- (b) a nucleotide sequence comprising at least 95% identity to the nucleotide sequence set forth in SEQ ID NO: 1, wherein said nucleotide sequence encodes a polypeptide having acyl-CoA thioesterase activity; and
- (c) the nucleotide sequence that is complementary to the nucleotide sequence of (a) or (b);

wherein the level of acyl-CoA thioesterase is decreased or increased in said plant cell.

Claims 31-36. (Canceled)

37. (Previously presented) The method of claim 5, wherein said plant is stably transformed with said nucleotide construct.

38. (Previously presented) The method of claim 5, wherein said nucleotide construct is incorporated within a viral DNA or RNA molecule.

39. (Previously presented) The method of claim 38, wherein said introducing comprises contacting the plant with a virus or viral nucleic acids.